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# Feeding Wheat to Livestock

CORN  
IS WORTH  
\$1<sup>00</sup>

THEN WHEAT  
IS WORTH  
\$1<sup>12</sup>  
AS FEED  
FOR HOGS  
AND CATTLE



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**I**N a general way, and for all-purpose feeding, a pound of cracked wheat or a pound of cracked barley, or a pound of both in any proportion, is equal in feeding value to a pound of corn.

Farmers whose corn crops are short can now save money by substituting wheat and barley, pound for pound, for corn, and in feeding those grains in the same way and in the same combinations as they have heretofore fed corn. (September 5, 1930.)

# FEEDING WHEAT TO LIVESTOCK

*Prepared by the Bureaus of Agricultural Economics, Animal Industry, and Dairy Industry*

Wheat is not usually regarded as a substitute for corn as a feed for livestock, but a small carry-over of old corn and a new crop greatly reduced by the drought leaves many farmers short of corn for feed. With the other feed grain supplies only about equal to the amounts normally fed, the main source for making up the shortage of corn is wheat.

The August (1930) forecasts of the wheat crop added to the carry-over indicate a supply of about 1,096,000,000 bushels, which is 131,000,000 above the 5-year average, 1924-1928, and about 440,000,000 above the average amount used annually for human food and seed in the United States. Already some of this surplus has been exported.

## CORN DEFICIT EXCEEDS WHEAT SURPLUS

If no more wheat were moved out of the country and all the remaining surplus were fed, it would not be sufficient to make up the deficit in corn. Much wheat is being fed, but some farmers hesitate to feed it because they are not accustomed to doing so. The value of wheat for feed and the combinations with other feedstuffs that will produce the best results are presented in the following pages.

## PRICES OF WHEAT AND OTHER GRAINS

A bushel of wheat normally sells for more than a bushel of any other grain, but in August the price of corn in every State except Georgia was higher than the price of wheat. In the Corn Belt corn averaged 9 cents per bushel, in the hard winter wheat States 13 cents, and in the Western States 22 cents per bushel above wheat prices. Table 1 gives farm prices of wheat, corn, oats, and barley in various States and in the United States on August 15, 1930. Table 2 gives prices for the same grains at three leading markets.

TABLE 1.—Average farm prices (in cents per bushel) of wheat, corn, oats, and barley, in States listed, August 15, 1930

State	Wheat	Corn	Oats	Barley	State	Wheat	Corn	Oats	Barley
New York.....	89	107	49	69	West Virginia.....	97	114	63	76
Pennsylvania.....	87	103	49	72	North Carolina.....	111	112	65	95
Ohio.....	84	94	38	49	South Carolina.....	117	108	65	133
Indiana.....	81	88	34	53	Georgia.....	129	107	69	127
Illinois.....	80	87	34	50	Kentucky.....	94	107	55	64
Michigan.....	80	93	37	53	Tennessee.....	104	108	55	90
Wisconsin.....	88	89	37	55	Alabama.....	-----	115	63	-----
Minnesota.....	76	82	30	41	Mississippi.....	95	105	63	-----
Iowa.....	77	84	32	44	Arkansas.....	94	110	52	-----
Missouri.....	83	96	37	51	Louisiana.....	-----	96	58	-----
North Dakota.....	68	75	26	33	Oklahoma.....	71	86	35	50
South Dakota.....	65	77	30	37	Texas.....	71	85	39	48
Nebraska.....	67	77	30	37	Colorado.....	64	77	38	44
Kansas.....	70	83	36	45	New Mexico.....	69	88	50	62
Maryland.....	86	106	51	77	Utah.....	70	105	42	85
Virginia.....	93	111	62	81	United States.....	74	90	35.7	43.6



TABLE 2.—*Weighted average cash prices per bushel for wheat, corn, oats, and barley at stated markets, August 15, 1930*

Market	No. 2 hard winter wheat	No. 3 yel- low corn	No. 3 white oats	No. 2 bar- ley
	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
Chicago.....	90	99	39	63
Kansas City.....	82	96	40	58
St. Louis.....	89	101	40	-----

## FEEDING VALUE OF WHEAT AND OTHER GRAINS

The feeding value of wheat in relation to the feeding values of other grains and the pound weight per bushel must be taken into account when comparing prices of these grains. Table 3 shows that when the price of corn is \$1 per bushel, the value of wheat for feeding poultry and sheep is about \$1.07, and for feeding hogs and beef cattle, \$1.12. Barley is also cheap. It will be noted that the average price of barley in the United States in August was about 44 cents per bushel. With corn at \$1 per bushel, the feeding value of barley is 80 cents per bushel.

TABLE 3.—*Relative values per bushel of corn, wheat, and barley, based on their relative feeding values*

When price of corn is—	Value (not including cost of grinding) for—				
	Poultry	Sheep		Hogs and beef cattle	
	Wheat	Wheat	Barley	Wheat	Barley
	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
70 cents.....	75	75	56	79	56
75 cents.....	80	80	60	84	60
80 cents.....	86	86	64	90	64
85 cents.....	91	91	68	96	68
90 cents.....	96	96	72	101	72
95 cents.....	102	102	76	107	76
100 cents.....	107	107	80	112	80
105 cents.....	113	113	84	118	84
110 cents.....	118	118	88	123	88
115 cents.....	123	123	92	129	92
120 cents.....	128	128	96	123	96
125 cents.....	134	134	100	140	100

From a practical livestock-feeding point of view wheat is about equal to corn, pound for pound, as a feed for farm animals. Wheat contains 3 per cent more protein and a little more carbohydrates, and 2.5 per cent less fat than corn.

The greater amount of carbohydrates in wheat is used by animals either as fuel or energy or is stored as fat. Moreover, wheat has a very small quantity of crude fiber, hence animals digest it readily.

Wheat, like corn, is not a complete feed. It does not have sufficient lime, phosphorus, and potash, nor all the protein subdivisions which are necessary for animals' development and their duties. In feeding wheat, as well as in feeding corn, it is important to feed also those products which will furnish the portion of nutritive material that the grain lacks.

Legume hay from crops such as alfalfa, clover, soybeans, peanuts, etc., is a useful supplement to wheat, but a protein meal or cake made from crops and products such as cottonseed, coconuts, flaxseed, soybeans, or peanuts is also satisfactory. For swine and poultry, fish meal, dried blood, meat scrap, and tankage should be taken into consideration for they are also protein concentrates. The cost per pound of protein should be considered in choosing a protein supplement to be fed along with barley, wheat, or corn. (Table 4.)

TABLE 4.—*Cost of a pound of protein when the percentage of protein in the feed and the price per ton are known*

When price of feed per ton is—	Cost of 1 pound of protein when percentage of protein is—							
	15	20	25	30	35	40	45	50
	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>	<i>Cents</i>
\$15.....	5.00	3.75	3.00	2.50	2.15	1.88	1.67	1.50
\$17.50.....	5.83	4.37	3.50	2.91	2.50	2.19	1.94	1.75
\$20.....	6.67	5.00	4.00	3.33	2.86	2.50	2.22	2.00
\$22.50.....	7.50	5.63	4.50	3.75	3.21	2.81	2.50	2.25
\$25.....	8.33	6.25	5.00	4.16	3.57	3.12	2.78	2.50
\$27.50.....	9.17	6.87	5.50	4.58	3.93	3.43	3.05	2.75
\$30.....	10.00	7.50	6.00	5.00	4.29	3.76	3.33	3.00
\$32.50.....	10.83	8.12	6.50	5.41	4.64	4.06	3.61	3.25
\$35.....	11.67	8.75	7.00	5.83	5.00	4.38	3.89	3.50
\$37.50.....	12.50	9.37	7.50	6.25	5.36	4.69	4.17	3.75
\$40.....	13.33	10.00	8.00	6.66	5.72	5.00	4.44	4.00
\$42.50.....	14.17	10.62	8.50	7.08	6.07	5.31	4.72	4.25
\$45.....	15.00	11.25	9.00	7.50	6.43	5.62	5.00	4.50
\$47.50.....	15.83	11.87	9.50	7.91	6.79	5.93	5.28	4.75

The feeds contain crude protein approximately as follows: Clover hay, 14 per cent; alfalfa hay and wheat bran, 16 per cent; linseed meal, 35 per cent; prime cottonseed meal, 39 per cent; soybean meal, 47 per cent; and peanut meal, 49 per cent.

#### GRIND OR CRUSH WHEAT FOR FEEDING

It is usually unnecessary to grind grain for feeding livestock, but wheat kernels are small and rather hard; hence they should be crushed or coarsely ground. Barley is sometimes steam rolled but it may be coarsely ground for horses and cattle. For horse and cattle feeding, it is advisable to mix the crushed wheat with other grain or with bran to make it less heavy and to prevent its tendency to form a sticky, pasty mass when eaten. Bran not only serves to make the ration lighter, but by furnishing considerable protein and phosphorus, tends to make a more balanced ration.

The rations which follow are made up largely of wheat, but other feeds are included to provide sufficient bulk and nutrients. These feed combinations are offered for consideration as feed for livestock at times like the present, when wheat can be obtained at a lower cost than corn. However, they are intended for use merely as a guide, and readers are urged to use available farm feeds and to purchase only those supplementary feeds that are needed to provide a suitable ration. The cost of a pound of nutrients should be considered before the feeds are purchased and those should be selected which cost the least.

## WHEAT IN RATIONS FOR DAIRY COWS

All grains to be used in the ration of the dairy cow should be either rolled or rather finely ground. When mixed with twice its weight of other feeds wheat will not become gummy when masticated.

Following are some rations suitable for use with roughages of different kinds:

For use with good pasture or with alfalfa, soybeans, or Lespedeza hay: Equal parts of wheat, oats, and barley. This contains about 12 per cent of protein.

For use with legume hay and silage or mixed hay alone: Equal parts of wheat, oats, and gluten feed. This contains 17 per cent of protein.

For use with nonlegume hay and silage or of either alone: Equal parts of wheat, oats, gluten feed, and cottonseed meal. This contains 23 per cent of protein.

In general, corn, wheat, barley, and dried beet pulp may be used interchangeably in the above rations; dried brewers' grains may be fed in the place of the gluten feed; linseed meal, soy-bean meal, or peanut meal may be used instead of the cottonseed meal.

A ready-mixed dairy feed containing 24 per cent protein can be reduced to 20 per cent by adding 100 pounds of ground wheat to 200 pounds of the dairy feed, thus making a ration suitable for feeding with legume hay and silage, or with mixed hay alone.

A 30 per cent dairy ration may be reduced to 24 per cent by adding 100 pounds of ground wheat to 200 pounds of the dairy feed. Such a ration will be suitable for use with a nonleguminous roughage.

## WHEAT IN RATIONS FOR BEEF CATTLE

## FOR WINTERING HERD BULLS, WEIGHING ABOUT 1,400 POUNDS

<i>Ration 1</i>	<i>Pounds</i>	<i>Ration 2</i>	<i>Pounds</i>
Crushed wheat.....	10	Crushed wheat.....	5
Alfalfa or soybean hay.....	10	Legume hay.....	25
Corn or sorgo silage.....	30	Straw or stover.....	5

## FOR WINTERING BREEDING COWS, WEIGHING ABOUT 1,000 POUNDS

<i>Ration 1</i>	<i>Pounds</i>	<i>Ration 2</i>	<i>Pounds</i>
Crushed wheat.....	2	Crushed wheat.....	3
Oat or barley hay.....	10	Alfalfa or soybean hay.....	10
Corn or sorgo silage.....	30	Straw or corn stover.....	15

## FOR WINTERING STOCK CALVES, WEIGHING ABOUT 400 POUNDS

<i>Ration 1</i>	<i>Pounds</i>	<i>Ration 2</i>	<i>Pounds</i>
Crushed wheat.....	4	Crushed wheat.....	2
Pea-vine or Lespedeza hay.....	3	Soybean or peanut meal.....	1
Corn silage.....	15	Legume hay.....	5
		Straw or stover.....	10

## FOR WINTERING 2-YEAR-OLD STEERS

<i>Ration 1</i>	<i>Pounds</i>	<i>Ration 2</i>	<i>Pounds</i>
Crushed wheat.....	2	Crushed wheat.....	2
Cottonseed cake.....	$\frac{1}{2}$	Cottonseed cake.....	$\frac{1}{2}$
Corn silage.....	30	Legume hay.....	12
Straw.....	3	Straw or stover.....	6

## FOR FATTENING YEARLING STEERS IN THE FEED LOT

<i>Ration 1</i>	<i>Pounds</i>	<i>Ration 2</i>	<i>Pounds</i>
Crushed wheat.....	15	Crushed wheat.....	16
Alfalfa hay.....	10	Linseed meal.....	2
Corn silage.....	12	Legume hay.....	9



## FOR FATTENING 2-YEAR-OLD STEERS IN THE FEED LOT

<i>Ration 1</i>	<i>Pounds</i>	<i>Ration 2</i>	<i>Pounds</i>
Crushed wheat-----	14	Crushed wheat-----	15
Protein meal-----	2 $\frac{1}{4}$	Protein meal-----	2
Mixed hay-----	4	Mixed hay-----	8
Corn or sorgo silage-----	14		

## FOR FATTENING 2-YEAR-OLD STEERS ON GRASS

<i>Ration 1</i>	<i>Pounds</i>	<i>Ration 2</i>	<i>Pounds</i>
Crushed wheat (135 days)-----	10	Crushed wheat (120 days)-----	8
Grass pasture (135 days)-----		Cottonseed cake (last 90 days)-----	2
		Grass pasture (120 days)-----	

## WHEAT AND BARLEY IN RATIONS FOR HORSES

## FOR IDLE HORSES (1,000 POUNDS LIVE WEIGHT)

<i>Ration 1</i>	<i>Pounds</i>	<i>Ration 2</i>	<i>Pounds</i>
Crushed wheat-----	5	Rollod barley-----	4
Legume hay-----	3	Alfalfa hay-----	4
Straw or stover-----	9	Barley straw-----	7

## HORSES AT MEDIUM WORK (1,000 POUNDS LIVE WEIGHT)

<i>Ration 1</i>	<i>Pounds</i>	<i>Ration 2</i>	<i>Pounds</i>
Crushed wheat-----	5	Crushed wheat-----	5
Rollod barley-----	5	Ear corn-----	5
Alfalfa hay-----	6	Alfalfa hay-----	6
Prairie hay-----	5	Timothy hay-----	7

## HORSES AT HARD WORK (1,000 POUNDS LIVE WEIGHT)

<i>Ration 1</i>	<i>Pounds</i>	<i>Ration 2</i>	<i>Pounds</i>
Crushed wheat-----	6	Crushed barley-----	6
Oats-----	6	Shelled corn-----	7
Linseed meal-----	1	Protein meal-----	1 $\frac{1}{2}$
Timothy hay-----	6	Cowpea hay-----	5
Clover hay-----	6	Stover-----	9

## WHEAT IN RATIONS FOR SHEEP

## FOR BREEDING EWES

<i>Ration 1</i>	<i>Pounds</i>	<i>Ration 2</i>	<i>Pounds</i>
Wheat-----	$\frac{1}{2}$	Wheat-----	$\frac{1}{2}$
Linseed meal-----	$\frac{1}{4}$	Legume hay-----	2
Corn silage-----	2	Straw or stover-----	3
Straw or stover-----	1		

## FOR FATTENING LAMBS, ABOUT 60 POUNDS LIVE WEIGHT

Grain mixture:			
Wheat, 5 parts by weight-----	}		
Bran, 2 parts by weight-----			
Oats, 2 parts by weight-----			
Linseed meal, 1 part by weight-----			
Legume hay-----			1 $\frac{1}{2}$

Barley may be substituted for wheat by adding about 7 per cent more barley.

## FEEDING WHEAT TO SWINE WITH A SELF-FEEDER

## FOR FREE-CHOICE SYSTEM

Ground wheat in first compartment.

Tankage or fishmeal in second compartment.

Mineral mixture in third compartment (ground limestone, 50 parts; steamed bonemeal, 30 parts; common salt, 20 parts).

Barley may be substituted for wheat by adding 7 per cent more barley.

## FEEDING WHEAT TO POULTRY

## LAYING MIXTURES

<i>Mash</i>	<i>Pounds</i>	<i>Scratch</i>	<i>Pounds</i>
Ground wheat.....	40	Wheat.....	60
Corn meal.....	20	Yellow corn.....	35
Meat scrap.....	20		
Ground oats.....	13		
Dried buttermilk.....	2		
Fine oyster shell.....	2		
Bone meal.....	2		
Common salt.....	1		

## FEED MIXTURES FOR GROWING STOCK

<i>Mash</i>	<i>Pounds</i>	<i>Scratch</i>	<i>Pounds</i>
Ground wheat.....	44	Wheat.....	60
Corn meal.....	20	Cracked corn.....	40
Meat scraps.....	15		
Bran.....	10		
Alfalfa meal.....	5		
Bone meal.....	3		
Fine oyster shell.....	2		
Salt.....	1		



